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The Role of Advocacy Research in the Right to Repair Campaign

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Abstract: The Right to Repair movement is a diverse coalition of consumers, independent repair technicians, environmental advocates, farmers, and medical repair technicians who advocate for repair access and increased autonomy over devices and equipment to reduce waste, save money, and increase product lifespans. The movement was formed in opposition to various barriers to repair that original electronic manufacturers (OEMs) impose on consumers and independent technicians. Barriers to repair contribute to premature electronic obsolescence and OEM monopolies on the repair market. Right to Repair legislation would require that manufacturers provide independent technicians or customers with service manuals, parts, tools, and diagnostics on fair and reasonable terms to allow for repairs. Advocates for Right to Repair use research reports as one tactic to advance the campaign. This paper discusses the findings from five advocacy research reports by U.S. Public Interest Research Group Education Fund, research's role in the campaign in general, and the value added from research reports. Advocacy research tells the story of the campaign, engages and activates stakeholders, generates media recognition, and educates the public and lawmakers. Communicating the findings of research to the public is critical to confronting a financially and politically equipped opposition industry and combatting the lack of public awareness of Right to Repair legislation.

Introduction: Barriers to Repair

The Right to Repair movement has emerged over the last decade due to significant barriers to repairing consumer electronics, farm and medical equipment. Original equipment manufacturers (OEMs) frequently deny access to genuine parts, schematics, specialty hardware tools, software tools, or service manuals that are critical to repairing electronics. Barriers to repair result in two primary grievances: 1) premature electronic obsolescence resulting in the churn of environmentally taxing and oftentimes expensive devices 2) a reliance on OEMs for repair, creating an uncompetitive monopoly which inhibits small-business growth and limits choices.

The premature end-of-life of electronics creates both environmental and economic grievances and is a core tenet of the Right to Repair movement. Premature obsolescence results in rapid cycles of production and disposal of devices, contributing to natural resource exploitation, landfilling, or incomplete recycling of otherwise useful devices. In addition to its environmental impacts, electronic obsolescence forces consumers to buy new devices periodically and restricts the availability of refurbished electronics, which can be a cost-effective option for economically strained families (Proctor, 2020).

OEM monopolies on repair have economic implications. Independent repair businesses, which are often small and local, farmers, and biomedical repair technicians are disadvantaged by barriers to repair resources, delays in OEM service, or unreasonably high prices for trainings, parts, or service (Green and Scarr, 2021).

Since many OEMs do not provide access to repair resources, Right to Repair legislation has been brought forth as a policy solution to address electronic obsolescence and repair monopolies. Template Right to Repair legislation (Repair.org/legislation) mandates that OEMs provide fair and reasonable access to original parts, hardware tools, software, diagnostic, or pairing tools, firmware updates, documentation, service manuals or information, and, if applicable, trainings.

Outside the car industry, a Right to Repair bill has yet to pass in any U.S. state legislature for three key reasons. First, the opposition is composed of an entrenched incumbent industry with political access, clout, and ample resources (Allendorf, 2018). Second, independent service providers are less organized than the opposition. Finally, while Right to Repair has high public support in the U.S., it has low public awareness. The legislation is supported by over 70 percent of those familiar with it, but 55 percent of Americans do not know what Right to Repair is (Waveform, 2020).

This paper will discuss reports written by U.S. Public Interest Research Group (U.S.

PIRG) and U.S. PIRG Education Fund targeted toward five different constituencies within the Right to Repair campaign: consumers, consumer electronics repair technicians, environmental advocates, farmers, and biomedical repair technicians, and identify the value that each report adds to the campaign. Finally, in the conclusion and discussion, we synergize the reports, explain their significance and identify challenges and opportunities for the movement going forward. Reports convey the story and stakeholders of the campaign, leverage media attention, network within stakeholder groups, and educate the public. More research and successive communication of research is essential to increasing public awareness of Right to Repair and motivating more citizens and organizations to support the legislation.

Repair of Consumer Electronics

What Are We Fixing?

In February 2021, U.S. PIRG released the report "What Are We Fixing?" through state affiliates, which analyzed data from the popular repair website, iFixit.com, to identify the top devices and issues that residents of various states were repairing and addressing in 2020 and the barriers they faced. The report also discussed how repair changed during the COVID-19 pandemic, told through interviews with repair shop owners.

In California, the most populous state, the top devices Californians searched to fix were laptops, cell phones, and gaming consoles. Laptops became essential to learning online, working remotely, and remaining connected during the COVID-19 pandemic. Gaming console repairs increased as people sought entertainment indoors. People were also seeking out independent repair: seven out of ten repair shop owners interviewed had reported business increasing in the months after the pandemic (Green and DeBellis, 2021).

The report revealed that while repair is popular, manufacturers impose barriers against it. For example, iFixit.com received 6.8 million unique visits from California, but six out of the top ten manufacturers of devices that Californians were trying to fix restrict access to repair resources (Green and DeBellis, 2021).

"What Are We Fixing" contextualized Right to Repair within the pandemic and identified challenges, like supply-chain resiliency and the digital divide, or the unequal access to technology between poor and wealthy families, that Right to Repair legislation could address.

The Fix Is In: *how our smartphones get fixed, why it's harder than it should be, and why that matters.*

"The Fix Is In" report, released in March of 2020, surveyed 302 independent phone repair technicians on their businesses and the barriers they faced from OEMs (Proctor, 2020). The report found that 78 percent of technicians offer repairs that OEMs will not perform. For example, Apple only offers four repairs: screen, battery, camera, or speaker replacements (Andeer, 2019). Experienced technicians can perform repairs for liquid damage, charging ports, data recovery, and more. Additionally, 89 percent of independent repair technicians said their businesses would be more successful if they had access to software tools from Apple and Samsung, which collectively make up nearly three quarters of all cell phone sales in the country (Segan, 2018). "The Fix Is In" presented an economic argument for Right to Repair, underscoring that the legislation would support local businesses and provide consumers better options.

Repair Saves Families Big

"Repair Saves Families Big," released in January 2021, estimates the annual financial savings if an average American household were to repair instead of replace their electronics (DeBellis and Proctor, 2021). The report estimates that an average family could save $330 annually if they repaired instead of replaced their electronics. The collective savings across the United States equate $40 billion annually (**Figure 1**). Released during an economic recession caused by the COVID-19 pandemic, the report highlighted a clear avenue for families to save money.

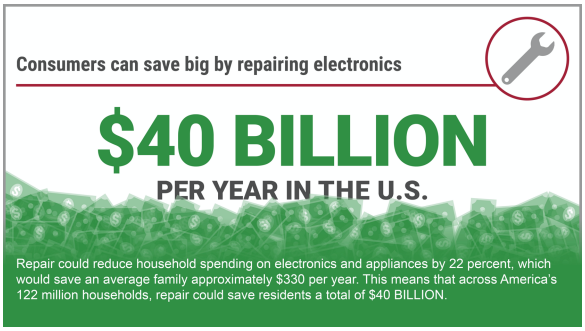

Figure 1. Annual savings from electronics repair calculated in "Repair Saves Families Big."

Environmental Impacts of Barriers to Repair

"The Fix Is In" and "Repair Saves Families Big" both discuss the role that barriers to repair play in generating electronic waste and

exploiting natural resources. "The Fix Is In" offers several illustrations of environmental harm from a smart phone. It is estimated that 85% of a smartphone's climate impact occurs before it is ever used (Wilson, 2018). An iPhone 6 requires 295 lbs of raw materials, including 75 lbs of ore and 220 lbs of water, to produce. By using the measurement of 122.7 pounds of carbon dioxide emitted per phone during production and 161 million phones bought in the U.S. annually, the report found that if Americans held unto their phones one year longer on average, the emissions reductions would be equivalent to taking 636,000 cars off the road annually. While these comparable calculations are generalizations, they give readers a tangible representation of electronics' environmental impact.

In addition to making an economic argument for Right to Repair, "Repair Saves Families Big" underscores the opportunity to address two problems at once through repair: both saving money and reducing electronic waste. The report found that the average American family generates 176 pounds of electronic waste (Leahy, 2017), or 6.9 million tons across the U.S. annually.

"The Fix Is In" and "Repair Saves Families Big" offer lawmakers and environmental advocacy groups support to make the environmental case for Right to Repair legislation. The figures in the reports are not original research and are meant to convey a problem and advance public awareness, not academic or scientific understanding. Once the problem is clearly communicated and understood, our campaign can better assert itself as the solution.

Farmers and Farm Equipment

Right to Repair legislation solely focused on agriculture make up 14 of the 41 state-level bills introduced in 2021. Farmers have been supporting Right to Repair for years, starting by petitioning for copyright exemptions for equipment repair. Key farm institutions support Right to Repair, including the American Farm Bureau, the National Farmers Union, and the National Corn Growers (O'Reilly, 2021, 7).

An increasing problem in repairing agricultural equipment is the novel importance of software. "Deere in the Headlights," released in February 2021, catalogs the importance of software in modern farm equipment, and finds that farmers are restricted from accessing the software tools they need (O'Reilly, 2021). The report investigates promises that John Deere and other OEMs made in 2018, claiming that their customers would have access to the tools necessary for repairs by January 2021 (Koebler, 2018). Kevin O'Reilly, the author of the report, called twelve farm equipment dealers across the U.S. to investigate the accuracy of these claims. O'Reilly found that eleven dealers claimed they did not sell any repair software. The twelfth told him to send an email, to which he got no response.

The report also shares several stories from farmers. For example, Missouri farmer Jared Wilson was forced to take his fertilizer spreader to a John Deere dealer to repair a blown mechanical valve, which is a repair he believes he could have done himself with the proper tools. The dealer took over a month to perform the repair, and Wilson estimated that the month he went without the machine cost him $30,000 to $60,000 in revenue. Stories like Wilson's are helpful tools in illustrating the necessity of Right to Repair in human terms, especially in the media. Forty-four articles and opinion columns were published in various states after the release of the report, each of which featured at least one story (For example, O'Reilly, 2021).

"Deere in the Headlights" was successful in advancing the campaign for three key reasons. First, it engaged the farming community through interviews with farmers and farm unions. This constituency can be translated into new Right to Repair advocates, building the power behind the campaign. The report also generated notable media coverage. For example, *Vice* furthered the report's investigation by calling an additional eleven farm equipment dealerships, none of which sold the software tools promised. Finally, the report investigated a voluntary right-to-repair agreement from industry groups and found that they did not fulfill their promise. Without this research, it is unclear when or if this would have been realized.

Hospitals and Medical Equipment

Hospital Repair Restrictions: *Manufacturer-imposed barriers to fixing medical equipment cause inefficiencies and delays*

As society faced new challenges during the COVID-19 pandemic, the Right to Repair campaign re-focused on medical equipment, finding new stakeholders and partners. While many Americans read about ventilator shortages at the beginning of the pandemic, biomedical repair technicians, or biomeds, the men and women who repair medical

equipment, perceived the story differently. For many biomeds, it was not a matter of whether enough ventilators were available, but if biomeds had the ability to repair or maintain them. U.S. PIRG Education Fund surveyed 222 biomeds about their experience fixing equipment from March to June in a report, "Hospital Repair Restrictions," released in July 2020 (Proctor and O'Reilly, 2020). The majority of biomeds surveyed, 64 percent, reported that they were often or somewhat frequently denied access to service information for critical equipment. Nearly half, 48.8 percent, said they had been denied access to critical repair resources between March and June. Of the 70 percent of survey respondents who serviced ventilators, 29.2 percent said that they had ventilators that could not be used due to barriers to repair, and half said that they had ventilators in use that they could not service if they broke down.

U.S. PIRG Education Fund published an update to the original survey in February 2021 (O'Reilly, 2021). The update revealed that despite some improvements in access to repair resources since July, biomeds were still barred from repairing certain equipment. Out of 129 biomeds, 76 percent were denied access to repair resources for critical medical equipment from December to February. Further, 80 percent of biomeds reported having equipment on site that they could not service due to OEM restrictions. An overwhelming majority, 97 percent, of the biomeds agreed that removing barriers to repair is important to their work, and 90 percent responded that the uptick in COVID-19 cases in January increased their need for Right to Repair legislation (**Figure 2**).

"Hospital Repair Restrictions," and the consecutive survey gave fresh urgency to the Right to Repair movement by connecting the issue to the pandemic response. The report expanded the scope of the campaign as hundreds of biomeds were engaged for the first time. Finally, the report's findings encouraged legislation. In August 2020, a month after the initial report release, Senator Ron Wyden introduced the Critical Medical Infrastructure Right to Repair Act of 2020: the first federal Right to Repair legislation (Wyden, S.4472, 2020). Three states also introduced medical-only Right to Repair bills: Texas, Hawaii and California (Eggman, SB605, 2021).

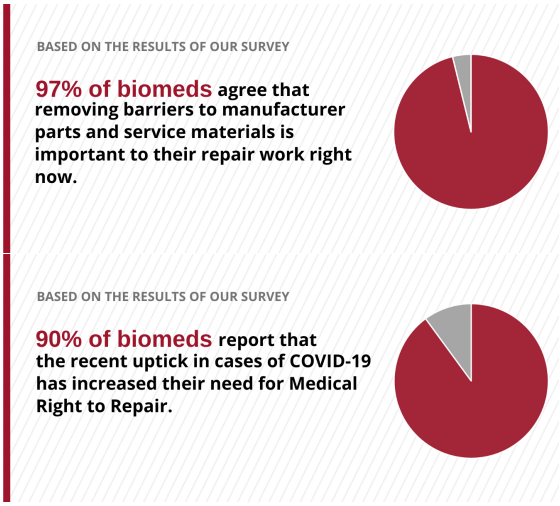

Figure 2. Figures from the update of "Hospital Repair Restrictions."

Conclusion

U.S. PIRG Education Fund's reports serve a variety of purposes for the Right to Repair campaign. First, the reports together convey the story and the stakeholders of the campaign. "What Are We Fixing," "The Fix Is In," and "Repair Saves Families Big" demonstrate how premature electronic obsolescence caused by barriers to repair impacts consumers, small businesses, and the environment. These reports also address how the OEM-dominated uncompetitive monopoly cap small business growth and success. "Deere in the Headlights" demonstrates the applicability of Right to Repair for farmers, who are a powerful political constituency. "Hospital Repair Restrictions" identifies an unlikely group of Right to Repair advocates in biomeds and connects the movement to the COVID-19 pandemic. Finally, both "Deere in the Headlights" and "Hospital Repair Restrictions" reveal how an uncompetitive repair monopoly impacts specific industries, making our systems of food production and healthcare less cost-efficient and resilient in the face of challenges. Taken together, these reports show that the premature obsolescence and uncompetitive monopolies that ensue from barriers to repair have significant negative social impacts for a diverse array of individuals and groups.

Second, reports engage and activate stakeholders. Reports require outreach in the form of surveys or interviews. In this outreach, connections are made and groups are transformed from supporters to advocates.

Third, reports generate media attention, often at critical times. Media coverage

elevates an issue's relevance, making bills more likely to be introduced and eventually passed. Media attention also has the potential to reach new supporters or lawmakers. Finally, a report may be released at a strategic time: concurrent with a bill's announcement, after a committee hearing, or before a floor vote. The release of a report generates new media for Right to Repair when it is most important.

Finally, reports educate the public on the importance of removing barriers to repair. Reports are written to be easily understandable, relatable, and energizing for a public-facing audience.

More work is needed to educate the public on barriers to repair and encourage advocacy for Right to Repair legislation. In the wake of a strongly organized opposition with ample resources, a lack of awareness among half of the American population is a primary impediment to passing Right to Repair legislation. Future research has the potential to elevate the public conversation around repair, but the subsequent marketing and reporting of this research is critical to moving the Right to Repair movement forward.

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